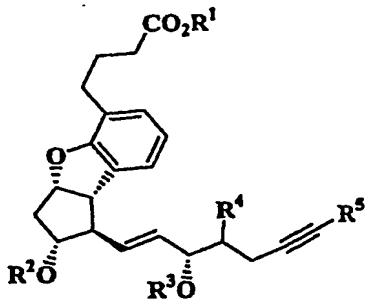
WHAT IS CLAIMED IS:

1. A process for preparing a compound of the following formula:



(I)

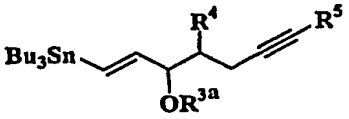
, wherein R^1 represents a cation, H, or C_{1-12}alkyl,

R^2 and R^3 each represent H or a hydroxy protective group,

R^4 represents H or C_{1-3}alkyl, and

R^5 represents H or C_{1-6}alkyl, comprising the steps of:

(1) converting a compound of the following formula:

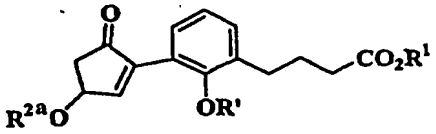


(III)

, wherein R^{3a} represents a hydroxy protective group, and

R^4 and R^5 are each as defined above,

into its cuprate, and then, performing stereo-specific 1,4-addition reaction of the cuprate to an α, β-unsaturated ketone of the following formula:



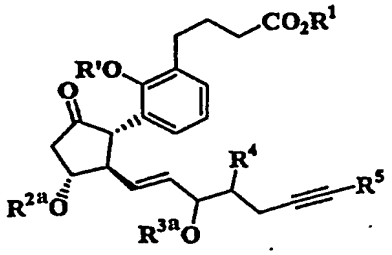
(II)

, wherein R^1 is as defined above,

R^{2a} represents a hydroxy protective group, and

R' represents a hydroxy protective group,

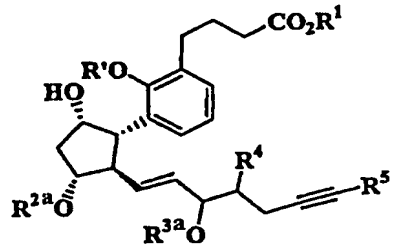
to form a compound of the following formula;



(IV)

, wherein R^1, R^{2a}, R^{3a}, R^4, R^5 and R' are each as defined above;

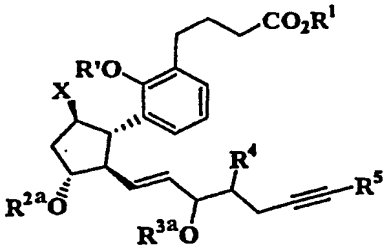
(2) reducing a ketone of cyclopentanone in the compound of formula (IV) to form an α-alcohol compound of the following formula:



(V)

, wherein R^1, R^{2a}, R^{3a}, R^4, R^5, and R' are each as defined above;

(3) substituting the α-alcohol of the compound of formula (V) with a halide to form a β-halide compound of the following formula:

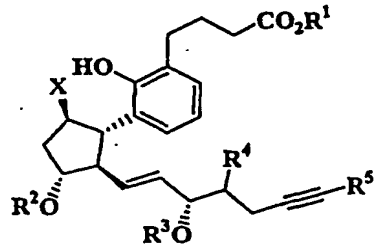


(VI)

, wherein R^1, R^{2a}, R^{3a}, R^4, R^5 and R' are each as defined above, and

X represents halo;

(4) deprotecting a hydroxy protective group of the compound of formula (VI) to form a compound of the following formula:



(VII)

, wherein R^1, R^2, R^3, R^4, R^5, and X are each as defined above;

(5) performing intramolecular cyclization to the compound of formula (VII) to form the compound of formula (I).

2. The process of Claim 1, wherein R^2, R^3, R^{2a} and R^{3a} each represent trimethylsilyl, triethylsilyl, t-butyldimethylsilyl, t-butyldiphenylsilyl, phenyldimethylsilyl, or tetrahydropyranyl, and R' represents methyl, methoxymethyl, methoxyethyl, benzyloxymethyl, or p-benzyloxymethyl.

3. The process of Claim 1, wherein in step (2) the reduction is performed with using a metal hydride.

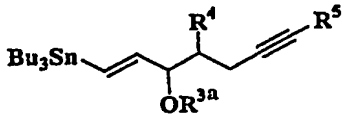
4. The process of Claim 3, wherein the metal hydride is selected from the group consisting of sodium borohydride ($NaBH_4$), L-selectride, N-selectride and K-selectride.

5. The process of Claim 1, wherein in step (3), i) the α-alcohol is converted into a leaving group, and then, the leaving group is converted into the β-halide via SN_2 reaction with the halide nucleophile, or ii) the α-alcohol is directly converted into the β-halide using trialkylphosphine and carbon tetrahalide.

6. The process of Claim 1, wherein in step (4) the hydroxy protective group is deprotected under an acidic condition.

7. The process of Claim 1, wherein in step (5) the cyclization reaction is performed in the presence of base.

8. A compound of the following formula:



(III)

, wherein R^{3a}, R^4 and R^5 are each as defined in Claim 1.